

## CLAIMS

1. A power management system comprising:  
a primary power source;  
5 a secondary power source generated from the primary power source; and  
a power output selector coupled to the primary power source and the secondary power source, the power output selector operating to select:  
10 (a) the primary power source as a power supply at a desired regulated power output, during initialization of the power management system and at any other time during operation of the power management system that a magnitude of the primary power source exceeds a magnitude of the  
15 secondary power source,  
(b) the primary power source as the power supply at the desired regulated power output, at any time after initialization of the power management system that the magnitude of the primary power source exceeds the magnitude  
20 of a desired regulated power output, and  
(c) the secondary power source as the power supply at the desired regulated power output, at any time after initialization of the power management system that the magnitude of the secondary power source exceeds the  
25 magnitude of the primary power source and the magnitude of the primary power source is less than the desired regulated power output.
2. The power management system according to claim 1  
30 wherein the primary power source is a battery.
3. The power management system according to claim 2 wherein the power supply is maintained at a nominal voltage produced by the battery.
- 35 4. The power management system according to claim 3 wherein the nominal voltage produced by the battery is approximately one volt DC.

5. The power management system according to claim 1 wherein the power supply is maintained at a voltage of substantially one volt DC.

5           6. The power management system according to claim 1 wherein the secondary power source has a typical operating voltage magnitude that is greater than the primary power source.

10           7. The power management system according to claim 1 wherein the desired regulated power output has a typical operating voltage magnitude of substantially one volt DC.

15           8. The power management system according to claim 1 further comprising:

            a comparator coupled to the primary power source, a reference voltage, and the power output selector, the comparator having a pair of switching thresholds defined as a difference and a sum of the reference voltage and a  
20           predetermined hysteresis voltage, respectively.

            9. The power management system according to claim 8 wherein the comparator controls selection of the primary power source for power output in response to a primary power  
25           source voltage being greater than the difference between the reference voltage and the predetermined hysteresis voltage.

            10. The power management system according to claim 8 wherein the comparator controls selection of the secondary  
30           power source for power output in response to a primary power source voltage being less than the difference between the reference voltage and the predetermined hysteresis voltage.

11. The power management system according to claim 8 wherein the comparator controls selection of the primary power source for power output in response to a primary power source voltage being greater than the sum of the reference voltage and the predetermined hysteresis voltage.

12. The power management system according to claim 8 further wherein the comparator controls selection of the secondary power source for power output in response to a primary power source voltage less than the sum of the reference voltage and the predetermined hysteresis voltage.

13. The power management system according to claim 8 wherein the power output selector comprises:

a first switch coupled to the comparator and having an input coupled to the primary power source; and

a second switch coupled to the comparator and having an input coupled to the secondary power source;

wherein the first switch and the second switch are activated in a mutually exclusive manner to provide for power output at a common output.

14. A power management system comprising:

a primary power source;

a secondary power source generated from the primary power source;

5 a comparator coupled to the primary power source, a reference voltage, and the power output selector, the comparator having a switching threshold defined as a difference of the reference voltage and a predetermined hysteresis voltage; and

10 a power output selector coupled to comparator, the primary power source and the secondary power source, the power output selector operating to select:

(a) the primary power source as a power supply at a desired regulated power output, during initialization of the power management system and at any other time during operation of the power management system that a magnitude of the primary power source exceeds a magnitude of the secondary power source by a magnitude determined as a difference between the reference voltage and the  
15 predetermined hysteresis voltage,

(b) the primary power source as the power supply at the desired regulated power output, at any time after initialization of the power management system that the magnitude of the primary power source exceeds the magnitude of a desired regulated power output by the magnitude determined as the difference between the reference voltage and the predetermined hysteresis voltage, and  
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(c) the secondary power source as the power supply at the desired regulated power output, at any time after initialization of the power management system that the magnitude of the secondary power source exceeds the magnitude of the primary power source by the predetermined hysteresis voltage and the magnitude of the primary power source is less than the desired regulated power output.  
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15. The power management system according to claim 14 wherein the primary power source is a battery.

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a second switch coupled to the comparator and having an input coupled to the secondary power source;

wherein the first switch and the second switch are activated in a mutually exclusive manner to provide for power output at a common output.